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Date: October 29, 2003

To: Examiner: Jenkins, D.
Art Unit: 1742

Fax No.: 703-872-9310

From: Stephen P. Burr

Subject: U.S. Application Ser. No. 09/863,680

Filed: May 23, 2001

Conf. No.: 1276

Title: PROCESS FOR PRODUCTION OF INTERMETALLIC COMPOUND-
BASED COMPOSITE MATERIAL

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Our Ref.: 791_147

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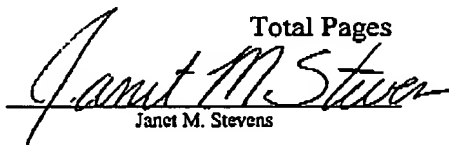
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| • Transmittal (1 page) (in duplicate) | <u>2</u> pages |
| • Request for Reconsideration (3 pages) | <u>3</u> pages |
| • This Cover Sheet | <u>1</u> page |

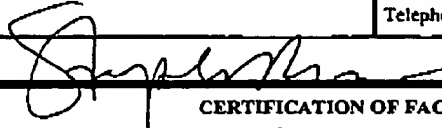
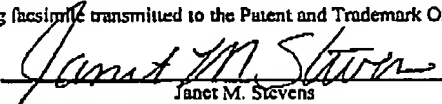
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Janet M. Stevens

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TRANSMITTAL FORM (Provisions of 37 CFR 1.136 Apply)						
Application Number	09/863,680	Filing Date	May 23, 2001			
Group Art Unit	1742	Examiner Name	Jenkins, D.			
Confirmation No.	1276	Attorney Docket No.	791_147			
Inventor(s)	Masahiro KIDA					
Invention:	PROCESS FOR PRODUCTION OF INTERMETALLIC COMPOUND-BASED COMPOSITE MATERIAL					
Transmitted herewith is a Request for Reconsideration in the above-identified application. The fee has been calculated as follows:						
CLAIMS						
(1)	(2) Claims Remaining	(3)	(4) Highest Number Previously Paid	(5) No. of Extra Claims Present	(6) Rate (Large Entity)	(7) Additional Fee
TOTAL CLAIMS	20	MINUS	20	0	\$18.00	\$00.00
INDEP. CLAIMS	2	MINUS	3	0	\$86.00	\$00.00
TOTAL ADDITIONAL FEE						\$00.00
EXTENSION OF TERM						
<input checked="" type="checkbox"/> Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.						
<input type="checkbox"/> This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and appropriate non-small entity fee are as follows:						
<input type="checkbox"/> One Month (37 CFR 1.17(a)(1))					\$110.00	
<input type="checkbox"/> Two Month (37 CFR 1.17(a)(2))					\$420.00	
<input type="checkbox"/> Three Month (37 CFR 1.17(a)(3))					\$950.00	
TOTAL FEES DUE						
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount is reduced by one-half, and the resulting fee is:						
FEE PAYMENT						
<input checked="" type="checkbox"/> No additional fee is required.						
<input type="checkbox"/> A check in the amount of \$_____ is enclosed.						
<input type="checkbox"/> Charge Deposit Account 50-1446 in the amount of \$. Enclosed is a duplicate copy of this sheet.						
<input checked="" type="checkbox"/> Please charge any fees which may be required, or credit any overpayment, to Deposit Account 50-1446.						
Submitted By:						
Name (Print Type)	Stephen P. Burr	Reg. No.	32,970	Customer No.	025191	
		Telephone	(315) 233-8300	Facsimile	(315) 233-8320	
Signature				Date	October 29, 2003	
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 Janet M. Stevens						

Practitioner's Docket No.: 791_147

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Masahiro KIDA

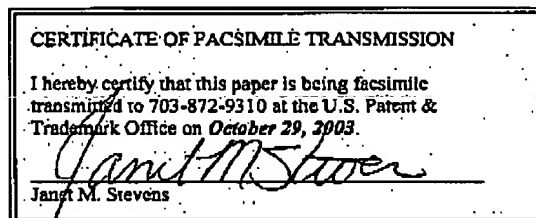
Ser. No.: 09/863,680

Group Art Unit: 1742

Filed: May 23, 2001

Examiner: Jenkins, D.

Confirmation No.: 1276

For: PROCESS FOR PRODUCTION OF INTERMETALLIC COMPOUND-BASED
COMPOSITE MATERIALCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450RECEIVED
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REQUEST FOR RECONSIDERATION

Sir:

The following remarks are in response to the Office Action mailed August 1, 2003.

1. Claims 1-18 are pending herein. Claims 1-18 were rejected under §103(a) over Hamajima et al. This rejection is respectfully traversed.

Pending independent claims 1 and 13 each recite processes in which an intermetallic compound-based composite material is produced. While pending claim 1 recites that a metal powder is mixed with a reinforcing material to obtain a mixed powder, pending claim 13 recites that metal and oxide powders are mixed with a reinforcing material to obtain a mixed powder. Each of pending claims 1 and 13 further recite that Al is placed on the upper side of the mixed powder, which has been filled into a reaction vessel, and heated under reduced pressure to infiltrate the mixed powder. As was the case with Newkirk et al. (applied in the prior Office Action), the applied prior art of record (Hamajima), discussed below, does not disclose or suggest the heating of Al and mixed powder under reduced pressure, as recited in pending claims 1 and 13.

Pending claims 1 and 13 each recite processes in which the mixed powder is placed into a reaction vessel and impregnated with an aluminum melt to obtain an aluminide intermetallic composite via a spontaneous combustion reaction (i.e., self-propagating high temperature synthesis (SHS)). Reaction heat generated between the molten aluminum and the metal in the mixed powder drives the reaction to completion and results in complete

infiltration of the Al into the composite through capillary action. That is, the spontaneous reaction between the metal powder in the reaction vessel and the molten Al causes the molten Al to be drawn into the composite. Consequently, the Al melt is impregnated into the gaps and spaces present in the reinforcing material "under no pressure application while the Al melt gives rise to a spontaneous combustion reaction," and thus "there can be produced a dense intermetallic compound-based composite material without applying a high pressure" (see original specification paragraph [0030] bridging pages 9 and 10 of the original specification).

Fig. 1 of Hamajima shows that a molten Al alloy 18 and a molded body 10 are placed into a mold cavity 16 in a high pressure casting apparatus 12. Hamajima discloses that the molten Al alloy 18 is poured into the mold cavity and pressed to and maintained at a pressure of 1000 kg/cm² by a plunger 20 until the molten Al alloy is completely solidified (see column 12, lines 3-12). Thus, Hamajima clearly teaches that high pressure is used in order to impregnate the molded body with the molten aluminum. As discussed above, pending claims 1 and 13 each recite that the Al melt is impregnated into the mixed powder under reduced pressure conditions, and not under high pressure conditions as disclosed in Hamajima. Therefore, Hamajima does not disclose or suggest each and every element recited in pending claims 1 and 13. The §103(a) rejection is erroneous and should be withdrawn for this reason alone.

Moreover, since Hamajima discloses that high pressure should be used to adequately impregnate the molten aluminum into the molded body, there is no disclosure or suggestion in Hamajima that a spontaneous combustion reaction between the metal powder and the molten Al would occur to convert the molten Al into an aluminide intermetallic compound, as recited in pending claims 1 and 13. Applicant respectfully submits that Hamajima's use of high pressure to force the molten aluminum into the molded body would lead one skilled in the art to believe that a spontaneous combustion reaction (as claimed) does not occur.

In view of all of the foregoing, reconsideration and withdrawal of the §103(a) rejection are respectfully requested.

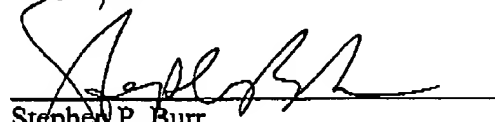
If the Examiner believes that contact with Applicant's attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicant's attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

October 29, 2003

Date


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SPB:SWC:jms

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